

LEONOV, L.F.

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CA

Effect of moisture deficiency on the processes of collision and coalescence of water drops. P. S. Prokhorov and L. F. Leonov, *Kolloid. Zhur.* 14, 66-72 (1952).—Water mist in air rose in a vertical tube kept at  $20^\circ$  and reached another vertical tube kept at  $20 \pm 1^\circ$ . The no.  $n$  of droplets that fell in the 2nd tube within 5 min. was detd. as a function of  $t$  by microscopic observation. (The app. is illustrated.) This  $n$  depends on the ratio  $\sigma$  of those collisions between droplets that result in coalescence to the total no. of collisions. A theory of the relation between  $n$  and  $\sigma$  is given (cf. Deryagin and Todes, *Doklady Akad. Nauk S.S.S.R.* 62, 93 (1948)). The mist contained chiefly droplets with radii between 2 and  $22 \mu$ ; the most frequent radius was  $15 \mu$  (calcd. from the rate of fall). The rate of mist rise in the 2nd tube was 21 or 39 cm./sec. In both instances  $n$  was independent of  $t$  at  $t < 0$ , i.e. when the air was supersatd. with moisture. At  $t = 1, 2$ , and  $3$ ,  $n$  was, e.g., 44%, 32%, and 21%, resp., of the  $n$  at  $t < 0$ . Thus,  $\sigma$  seems to be equal to one in supersatd. vapor and to decrease more, the less satd. is the vapor.  
J. J. Bikerman

Inst. Phys. Chem., AS USSR

LEONOV, L.F.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1260  
AUTHOR DERJAGIN, B.V., PROCHOROV, P.S., BATOVA, G.A., LEONOV, L.F.  
TITLE The Diffusion Hygrometer.  
PERIODICAL Zhurn. techn. fis, 26, fasc. 4, 887-894 (1956)  
Publ. 4 / 1956 reviewed 9 / 1956

The diffusion hygrometers described here are based upon the fact that in the chamber of the device containing a dry and a humid substance (and which is separated from the material to be investigated by a porous wall) under- or overpressure is produced while the diffusion current is steady. Here 4 varieties of these hygrometers are described each of which may have its own particular sphere of action. The two chamber hygrometer consists of two chambers which are separated from the surrounding atmosphere by uniform porous separating walls (of coal or mipor). Construction and mode of operation of the device are described. Using the two chamber hygrometer is complicated by the necessary determination of the apparatus constant K, the necessity of knowing atmospheric pressure, the diffusion coefficient, and air humidity. The three chamber hygrometer: In order to make the apparatus constant of the hygrometer independent of temperature and pressure, PROCHOROV and DERJAGIN suggested a three chamber hygrometer. The first chamber is dry, the second and third are used for compensation. Construction and operation of the apparatus are discussed. By means of this hygrometer it is possible to determine humidity independent of temperature and atmospheric pressure, above all also in the case of negative temperature. Next, hygrometers with assumed

124-58-9-10057

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 9, p 88 (USSR)

AUTHORS: Batova, G. A., Deryagin, B. V., Leonov, L. F., Nikol'skiy, A. P.,  
Prokhorov, P. S.

TITLE: Diffusion Hygrometers (Diffuzionnyye gigrometry)

PERIODICAL: V sb.: Issled. oblakov, osadkov i grozovogo elektrichestva.  
Leningrad, Gidrometeoizdat, 1957, pp 189-191

ABSTRACT: Bibliographic entry

1. Hygrometers--Equipment 2. Diffusion

Card 1/1

Leonov, L.F.

21  
Duration hypermeter. N. V. Litvinov, P. N. Prokhorov,  
G. A. Sidorov, and L. F. Leonov. *Soviet Phys. Tech.*  
Phys. 1 872-81 (1957) (English translation).—See C.A. 50  
12317a. B. M. P.

5

72  
31

LEONOV, L.F.

New methods and apparatus for determining porosity of loose  
materials and solid bodies. Trudy Inst. fiz. khim. no.6:146-  
154 '57. (MIRA 11:10)  
(Porosity--Measurement)

PROKHOROV, P.S. and LEONOV, L.F.  
(Inst. of Phys. Chem., AS USSR)

"The Study of Long Distance Forces Acting Between Water Drops  
and Non-volatile Particles."

paper submitted at the meeting of The Faraday Society, Bristol, England, 13-15 Sep '60

LEONOV, L.F.

82880

S/120/60/000/C2/011/052

24,6810

AUTHORS:

Deryagin, B.V., Prokhorov, P.S., Velichko, M.V. and Leonov, L.F.

TITLE:

A Diffusion Chamber with Supersaturation Which is Constant Both in Space and Time

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No 2, pp 45 - 47 (USSR)

ABSTRACT: The supersaturation in a Wilson chamber disappears rather rapidly owing to the unavoidable condensation of vapour on the walls and also due to heat transfer. In diffusion chambers supersaturation is constant in time, but not in space. The method suggested in the present paper is free from these two disadvantages and can be used to obtain supersaturation which is constant both in time and in space. The idea is to use a periodic variation of the temperature of the walls of the chamber. The problem is formulated as follows. It is assumed that the walls are always moist and the flow of liquid down the walls can be neglected. Under these conditions the thickness of the layer of moisture is constant. If one neglects the heat transfer

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E032/E314

A Diffusion Chamber with Supersaturation Which is Constant Both  
in Space and Time

associated with diffusion then the periodic change in the temperature of the walls will produce a heat wave propagated into the chamber. If the temperature of the walls is known then one can calculate the density of the vapour as a function of time. If the period of the temperature oscillations on the walls of the chamber is taken to be sufficiently short, then the temperature and diffusion waves are damped out in the neighbourhood of the walls and most of the volume of the chamber is maintained at an average temperature and density which can be expressed in terms of the temperature variation on the walls. If the amplitude of the temperature oscillations on the walls is small, the mean density of vapour in the chamber will be equal to the saturation vapour density at the average temperature of the walls and, consequently, the supersaturation will be equal to unity. At larger amplitudes of the temperature oscillations, the supersaturation will be greater than unity.

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The supersaturation will increase with the amplitude of the oscillations in the temperature of the walls. A chamber based on these ideas is shown in Figure 2. The working walls 1 were made of aluminium foil 0.05 mm in thickness and were in the form of squares 200 x 200 mm. Those walls were attached to the perspex frame 2 which was 50 mm thick. The heat waves are practically damped out at a distance of 3 mm from the wall when the period of 1 sec is used. The side walls formed by the frame are kept at the average temperature of the chamber. This tends to reduce side effects but does not eliminate them altogether, so that the working volume is smaller than the geometrical volume. The heat was applied by passing short but large current pulses (of the order of a few hundred amperes) through leads in thermal contact with the aluminium walls. The heat was removed by copper vessels 6 (Figure 2) filled with a mixture of acetone or alcohol and solid carbon dioxide. The thermal contact between the refrigerator and the aluminium wall

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E032/E314

A Diffusion Chamber with Supersaturation Which is Constant Both  
in Space and Time

ASSOCIATION: Institut fizicheskoy khimi AN SSSR  
(Institute of Physical Chemistry of the  
Academy of Sciences of the USSR)

SUBMITTED: March 9, 1959

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E032/E314  
A Diffusion Chamber with Supersaturation Which is Constant Both  
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of the chamber was through a thin paper layer 7. The rate of cooling could be adjusted by varying the thickness of this paper. This construction was used to obtain a temperature change of  $\pm 3^{\circ}\text{C}$  with a period of 1 sec at an average temperature of  $20^{\circ}\text{C}$ . The chamber was heated for 0.2 sec and cooled for 0.8 sec. The supersaturation in the chamber calculated from these data should be about 1%. In order to increase the degree of supersaturation, a larger amplitude in the temperature oscillations is required. The chamber can be used to reproduce slow atmospheric processes since the supersaturation in the formation of clouds is usually 0.1% and only relatively rarely exceeds 1%. Figure 3 shows the dependence of the supersaturation on the temperature amplitude for different average temperatures. There are 3 figures.

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LEONOV, L. F.

PHASE I BOOK EXPLOITATION

SOV/5590

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Konferentsiya po poverkhnostnym silam. Moscow, 1960.

Issledovaniya v oblasti poverkhnostnykh sil; sbornik dokladov na konferentsii po poverkhnostnym silam, aprel' 1960 g. (Studies in the Field of Surface Forces; Collection of Reports of the Conference on Surface Forces, Held in April 1960) Moscow, Izd-vo AN SSSR, 1961. 231 p. Errata printed on the inside of back cover. 2500 copies printed.

Sponsoring Agency: Institut fizicheskoy khimii Akademii nauk SSSR.

Resp. Ed.: B. V. Deryagin, Corresponding Member, Academy of Sciences USSR; Editorial Board: N. N. Zakhavayeva, N. A. Krotova, M. M. Kuzakov, S. V. Nerpin, P. S. Prokhorov, M. V. Talayev and G. I. Fuks; Ed. of Publishing House: A. L. Bankvitser; Tech. Ed.: Yu. V. Rykina.

PURPOSE: This book is intended for physical chemists.

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Studies in the Field of Surface Forces (Cont.)

SOV/5590

42  
COVERAGE: This is a collection of 25 articles in physical chemistry on problems of surface phenomena investigated at or in association with the Laboratory of Surface Phenomena of the Institute of Physical Chemistry of the Academy of Sciences USSR. The first article provides a detailed chronological account of the Laboratory's work from the day of its establishment in 1935 to the present time. The remaining articles discuss general surface force problems, polymer adhesion, surface forces in thin liquid layers, surface phenomena in dispersed systems, and surface forces in aerosols. Names of scientists who have been or are now associated with the Laboratory of Surface Phenomena are listed with references to their past and present associations. Each article is accompanied by references.

TABLE OF CONTENTS:

Zakhavayeva, N. N. Twenty-Five Years of the Laboratory of Surface Phenomena of the IFKhan SSSR (Institute of Physical Chemistry of the Academy of Sciences USSR)

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Studies in the Field of Surface Forces (Cont.)	SOV/5590	
Talayev, M. V., B. V. Deryagin, and N. N. Zakhavayeva. Experimental Study of the Filtration of Rarefied Air Through Porous Bodies in a Transitional Area of Pressures		187
Deryagin, B. V., N. N. Zakhavayeva, M. V. Talayev, B. N. Parfanovich, and Ye. V. Mekarova. Metallic Device for Determining the Specific Surface of Powdered and Porous Bodies		190

#### V. SURFACE FORCES IN AEROSOLS

Deryagin, B. V., S. P. Bakanov, S. S. Dukhin, and G. A. Batova. Diffusiophoresis of Aerosol Particles		197
Bakanov, S. P., and B. V. Deryagin. Behavior of a Small Aerosol Particle in a Nonuniformly Heated Mixture of Gases		202
Strozhilova, A. I. Differential Counter of Condensation Nuclei		209

Card 7/8

42  
Studies in the Field of Surface Forces (Cont.) SOV/5590

Deryagin, B. V., P. S. Prokhorov, M. V. Velichko, L. F.  
Leonov. New Method For Obtaining Constant and Homogenous  
Supersaturations

216

Martynov, G. A., S. P. Eakanov. On the Solution of a  
Kinetic Equation of Coagulation

220

AVAILABLE: Library of Congress

Card 8/8

JA/rsm/os  
10/28/61

42822

S/169/62/000/010/035/071  
D228/D307

3,5900

AUTHORS:

Prokhorov, P.S. and Leonov, L.F.

TITLE:

Investigation of diffusive long-range action forces  
between water drops and nonvolatile particles

PERIODICAL:

Referativnyy zhurnal, Geofizika, no. 10, 1962, 11,  
abstract 10B69 (In collection: Issled. oblakov,  
osadkov i grozovogo elektrichstva, M., AN SSSR,  
1961, 83-87)

TEXT:

The experimental set-up for measuring diffusive long-range forces between water drops and a 1 mm diameter silvered globule is described together with some results of the research. The measurements were made with a torsion balance. This had a sensitivity of  $0.4 \cdot 10^{-9}$  g and was fitted with an autocollimation raster photorelay, an amplifier, and an electronic recording potentiometer. The droplet and the globule were grounded during the measurements in order to obviate the possibility of the induction of the electrostatic charges. The diffusive forces were determined (after elimin-

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Investigation of diffusive ....

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ating the influence of convection currents) at a differing humidity of the surrounding medium and at different distances. No diffusive forces were detected when the surrounding medium was fully saturated with water vapor. If the humidity is nil, considerable diffusive forces appear, and their magnitude depends on the distance. At 40% humidity the diffusive forces are considerable, but their abatement is more marked than is the case with zero humidity. In this event the diffusive forces are inversely proportional to the square of the distance in the range from 5 to 12 mm. In this interval the order of magnitude of the repulsive forces amounts to  $1 \cdot 10^{-9}$  g. On the further approach of the drops the square relation is disturbed, and the forces grow more slowly. The experimental data cited agrees well with the theory, developed by B.V. Deryagin and S.S. Dukhin.  
[Abstracter's note: Complete translation]

Card 2/2

PROKHOROV, P.S.; LEONOV, L.F.

Study of long-range diffusion forces between water droplets  
and nonvolatile particles [with summary in English]. Koll.  
zhur. 23 no.4:464-468 J1-Ag '61. (MIRA 14:8)

1. Institut fizicheskoy khimii AN SSSR, Moskva.  
(Diffusion)

PROKHOROV, Petr Sergeyevich; LEONOV, L. F.

"Experimental study of diffusion forces"  
To be presented at the First National Conference on  
Aerosols -Liblice, Czechoslovakia, 8-13 Oct 1962

Inst. of Physical Chemistry, Acad. of Sci. USSR, Moscow

L 23197-66 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k) IJP(c) JD/HM/EM  
ACC NR: AP6005891 SOURCE CODE: UR/0096/65/000/011/0067/0070 <sup>48</sup><sub>46</sub>  
B

AUTHOR: Ratner, A. V. (Candidate of technical sciences); Mazel', R. Ye. (Candidate of technical sciences); Leonova, L. G. (Candidate of technical sciences); Borovin, G. K. (Engineer).

ORG: All-Union Heat Technology Institute (Vsesoyuznyy teplotekhnicheskii institut)

TITLE: Construction strength of welded joints made with high frequency currents

SOURCE: Teploenergetika, no. 11, 1965, 67-70

TOPIC TAGS: welding technology, high frequency

ABSTRACT: Joints in tubes with a diameter of 25 x 3 mm, made of Steel 20, were used for the tests. The welding was done with high frequency currents as well as by the contact method. The high frequency welding was done under the following conditions: generator voltage-430 volts; power of generator-60 kilowatts; frequency-8,000 cycles. Shielding from oxidation was done with a gas consisting of 15% acetylene and 85% natural gas, fed at a rate of 1.5 liters/sec through the 25 x 3 mm tubes. During the heating, there was a gap of 1 mm between the ends of the tubes,

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UDC: 621.632.411.4

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ACC NR: AP6005891

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through which the gas flowed and covered the surfaces being welded. Within a few seconds the gap closed and deposition began. The optimum heating temperature depends on the oxidation shielding medium and, at a specific deposition pressure of from 4 to 6 kgf/mm<sup>2</sup>, is from 1250 to 1280°C (that is, lower than the melting temperature of the steel). In the tests for resistance to thermal shock, samples of the welded joints were heated in an electric furnace and suddenly quenched in water. The samples were subjected to a metallographic investigation after tests at 780, 1500, 5112, and 10,062 cycles. The vibration resistance of the welded tube joints was studied in a special unit designed for simultaneous evaluation of the effect on construction strength of cyclic vibrations, internal pressure, and elevated temperatures. Test results are exhibited graphically and in tabular form. The general conclusion of the article is that welding with high frequency currents shows promise in welding heating surface tubes made of low carbon steel. Orig. art. has: 8 figures and 1 table.

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SUB CODE: 11, 13/ SUBM DATE: none.

Card 2/2 BK

LEONOV L.I.

TOVPENETS, Ye.S., kandidat tekhnicheskikh nauk; PISKUN, V.I., inzhener;  
SHLEPCHENKO, L.B., inzhener; GULYACHENKO, P.P., inzhener; LEONOV, L.I.,  
inzhener; POTAPOV, I.F., inzhener.

Improving the quality of the cutting teeth of cutting machines  
and of combined mining machines. Ugol' 29 no.10:23-26 O '54.(MIRA 7:11)

1. Donetskiy industrial'nyy institut (for Tovpenets & Piskun) 2. Kras-  
noluchskiy mashinostroitel'nyy zavod (for Shlepchenko, Gulyachenko &  
Leonov) 3. Kombinat Stalinugol' (for Potapov)  
(Coal--Mining machinery)

*Deputy*  
LEONOV, Leonid Ivanovich, 1895-1952; LAVRENT'YEVA, Ye.V., redaktor;  
RIVINA, T.W., tekhnicheskiiy redaktor

[In high latitudes; notes of a naturalist] V vysokikh shirotakh;  
zapiski naturalizta. Izd 2-e. Moskva, Gos. izd-vo geograficheskoi  
lit-ry, 1954. 119 p. (MLRA 8:2)  
(Arctic regions)

LEONOV, L.M.

... . NAZAREVSKIY, S.I.; MAKAROV, S.N.; PILIPENKO, F.S.; GERASIMOV, M.V.; IL'INSKAYA, M.L.; VEKSLER, A.I., [deceased]; VASIL'YEV, I.M.; IL'INA, N.V.; SOKOLOV, S.Ya.; LOZINA-LOZINSKAYA, A.S.; SAAKOV, S.G.; ZALESSEIY, D.M.; AVROHIN, N.A.; IVANOV, M.I.; PRIKLADOV, N.V.; SOBOLEVSKAYA, K.A.; SALAMATOV, M.N.; MALINOVSKIY, P.I.; LUCHNIK, A.I.; KRAVCHENKO, O.A.; VEKHOV, N.K.; GROZDOV, B.V.; MASHKIN, S.; BOSSE, G.G.; PALIN, P.S.; (g. Shuya, Ivanovskoy oblasti); MATUKHIN, ZATVARNITSKIY, G.F.; GRACHEV, N.G.; CHERKASOV, M.I.; KIRKOPULO, Ye.N.; LEVITSKAYA, A.M.; GRISHKO, N.N.; LIKHVAR', D.F. VIL'CHINSKIY, N.M.; LYPA, A.L.; OREKHOV, M.V.; SHCHERBINA, A.A.; TSYGANKOVA, V.Z.; BARANOVSKIY, A.L.; GEORGIYEVSKIY, S.D.; STEPUNIN, G.A. OZOLIN, E.P.; LUKAYTENE, M.K.; KOS, Yu.I.; VAIL'YEV, A.V.; RUKHADZE, P.Ye.; VASHADZE, V.N.; SHANIDZE, V.M.; MANDZHAVIDZE, D.V.; KORKESHKO, A.L.; KOLESNIKOV, A.I., (g. Sochi); SERGEYEV, L.I.; VOLOSHIN, M.P.; RYBIN, V.A.; IVANOVA, B.I.; RYABOVA, T.I.; GAREYEV, E.Z.; RUSANOV, F.N.; BOCHANTSEVA, Z.P.; BLINOVSKIY, K.V.; KLYSHEV, L.K.; MUSHEGYAN, A.M.; LEONOV, L.M.

Talks given by participants in the meeting. Biul.Glav.bot.sada no.15: 85-182 '53. (MLRA 9:1)

1. Glavnyy botanicheskiy sad Akademii nauk SSSR (for Makarov, Pilipenko, Gerasimov, Il'inskaya, Veksler); 2. Akademiya komunal'nogo khozyaystva imeni K.D. Pamfilova for Vasil'yev); 3. Vsesoyuznaya sel'skokhozyaystvennaya vystavka (for Il'ina); 4. Botanicheskiy sad Botanicheskogo instituta imeni V.L.Komarova Akademii nauk SSSR (for Sokolov, Lozina-Lozinskaya, Saakov); 5. Botanicheskiy sad Leningradskogo (continued on next card)

NAZAREVSKIY, S.L.---(continued) Card 2.

gosudarstvennogo ordena Lenina universiteta (for Zalesskiy); 6. Pol-yarno-Al'piyskiy botanicheskiy sad Kol'skogo filiala imeni S.M. Kirova Akademii nauk SSSR (for Avrorin); 7. Botanicheskiy sad pri Tomskom gosudarstvennom universiteta (for Ivanov); 8. Botanicheskiy sad pri Tomskom gosudarstvennom universiteta imeni V.V. Kuybysheva (for Prik-ladov); 9. Tsentral'nyy Sibirskiy botanicheskiy sad Zapadno-Sibirsko-go filiala Akademii nauk SSSR (for Salamatov, Sobolevskaya); 10. Bo-tanicheskiy sad Irkutsko gosudarstvennogo universiteta imeni A.A. Zhdanova (for Malinovskiy); 11. Altayskaya plodovo-yagodnaya opyt-naya stantsiya (for Luchnik); 12. Bashkirskiy botanicheskiy sad (for Kravchenko); 13. Lesostepnaya selektsionnaya opytnaya stantsiya deko-rativnykh kul'tur tresta Goszelenkhoz Ministerstva kommunal'nogo kho-zyaystva RSFSR (for Vekhov); 14. Bryanskiy lesokhozyaystvennyy insti-tut (for Grozdov); 15. Botanicheskiy sad pri Voronezhskom gosudar-stvennom universitete (for Mashkin); 16. Orekhovo-Zuyevskiy pedago-gicheskiy institut (for Bosse); 17. Botanicheskiy sad pri Rostovskom gosudarstvennom universitete imeni V.M. Molotova (for Matukhin); 18. Botanicheskiy sad Kuybyshevskogo gorodckogo otdela narodnogo obrazo-vaniya (for Zatvarnitskiy); 19. Zoobotanicheskiy sad pri Kazanskom universitete (for Grachev); 20. Gosudarstvennyy respublikanskiy proektnyy institut "Giprokommunstroy" (for Cherkasov); 21. Botani-cheskiy sad Odesskogo gosudarstvennogo universiteta imeni I.I. Mechni-kova (for Kirkopulo); 22. Botanicheskiy sad pri Dnepropetrovskom gosudarstvennom universitete (for Levitskaya); 23. Botanicheskiy sad  
(continued on next card)

NAZAREVSKIY, S.L.---(continued) (card 3).

Akademii nauk USSR (for Grishko, Likhvar', Vil'chinskiy); 24. Kiyevskiy sel'skokhozyaystvennyy institut (for Lypa); 25. Botanicheskiy sad Chernovitskogo gosudarstvennogo universiteta (for Orekhov); 26. Botanicheskiy sad pri L'vovskom gosudarstvennom universitete imeni Iv. Franko (for Shcherbina); 27. Botanicheskiy sad Khar'kovskogo gosudarstvennogo universiteta imeni A.M. Gor'kogo (for TSygan-kova); 28. Botanicheskiy sad Zhitomirskogo sel'skokhozyaystvennogo instituta (for Baranovskiy); 29. Botanicheskiy sad Akademii nauk Belorusskoy SSR (for Georgiyevskiy); 30. Institut biologii Akademii nauk Belorusskoy SSR (for Stepunin); 31. Botanicheskiy sad Akademii Litovskoy SSR (for Lukaytene); 32. Botanicheskiy sad Latviyskogo gosudarstvennogo universiteta (for Ozolin); 33. Kabardinskiy krayeved-cheskii botanicheskiy sad (for Kos); 34. Sukhumskiy botanicheskiy sad Akademii nauk Gruzinskoy SSR (for Vasil'yev, Rukhadze); 35. Batumskiy botanicheskiy sad Akademii nauk Gruzinskoy SSR (for Shanidze); 36. Tbilisskiy botanicheskiy sad Akademii nauk Gruzinskoy SSR (for Mandzhavidze); 37. Sochinskiy park Dendrariy (for Korkeshko); 38. Gosudarstvennyy Nikitskiy botanicheskiy sad imeni V.M. Molotova (for Sergeyev, Voloshin); 39. Krymskiy filial Akademii nauk SSSR (for Rybin); 40. Botanicheskiy sad Moldavskogo filiala Akademii nauk SSSR (for Ivanova); 41. Botanicheskiy sad Botanicheskogo instituta Akademii nauk Tadzhikskoy SSR (for Ryabova); 42. Botanicheskiy sad Kirgizskogo filiala Akademii nauk SSSR (for Gareyev); 43. Botanicheskiy (continued on next card)

. NAZAREVSKIY, S.L.---(continued) Card 4.

sad Akademii nauk Usbekskey SSR (for Rusanov, Bochantseva); 44.  
Botanicheskiy sad Akademii nauk Turkmenskoy SSR (for Blinovskiy);  
45. Respublikanskiy sad Akademii nauk Kazakhskoy SSR (for Klyshev,  
Mushegyan).

(Botanical gardens)

GROZDOV, Boris Vladimirovich, doktor biolog.nauk, prof.; LEONOV, L.M., laureat Leninskoy premii, red.; SVETLAYEVA, A.S., red. izd-va; KUZNETSOVA, A.I., tekhn. red.

[Treasures of the forest] Sokrovishcha lesa. Pod red. L.M.Leonova. Izd.2., ispr. Moskva, Goslesbumizdat, 1960. 157-p. (MIRA 14:6)  
(Forests and forestry)

LEONOV, L.M.; SAVIN, I.V.; LUTOKHIN, D.I.; SMIRNOV, V.I.

Smelting raw charges with a high zinc content. TSvet. met. 36  
no.1:16-21 Ja '63. (MIRA 16:5)  
(Copper--Metallurgy) (Zinc)

BUKH, Igor' Naumovich; VERIGIN, V.N.; ZAYCHIKOV, V.V.; ~~LEONOVA, L.N.~~;  
POLOSINA, G.V., red.; PYATAKOVA, M.D., tekhn. red.

[Electronic multiplying attachment for the T-5MU tabulator;  
a transistorized device] Elektronnaia umnozhaiushchaia pri-  
stavka k tabuliyatoru T-5mu; ustroistvo na poluprovodniko-  
vykh priborakh. Moskva, Gosstatizdat, 1963. 116 p.

(MIRA 16:8)

(Electronic computers)

LEONOV, I.P.; ALIMBERGA, V.P.; KOCHER'YANNI, S.B.; PROLOV, V.T.

Some problems in the stratigraphy of Paleogene sediments in the  
northern Yergeni Hills. Trudy NII nafttegaza no.13:47-53 '65.  
(MIRA 18:9)

SHVARTS, V.I.; LEONOV, M.A.; SHAKHNOVICH, V.A.

Heat-resistant iron-base alloy. Biul. TSIICHM no.3:49 '61.

(MIRA 14:12)

(Heat-resistant alloys)

LEONOV, M. F.

Omsk Province - Bee Culture

What armchair management leads to. Pchelovodstvo. 29 no. 9, 1952.

MONTHLY LIST OF RUSSIAN ACCESSIONS, LIBRARY OF CONGRESS. NOVEMBER, 1952. Unclassified.

LEONOV, M.F.

Bee Culture - Omsk Province

What armchair management leads to. Pchelovodstvo 29 no. 8, 1952.

Monthly List of Russian Accessions, Library of Congress, November 1952. Unclassified.

LEONOV, M. M. and KRIVOSHTA, Ye. Ye.

"Use of vaporization in surgery processes under battle-field conditions," In symposium:  
Nauch.-prakt. raboty voyen-vet. sluzhby, Moscow, 1948, p. 11-14

SO: U-3850, 16 June 53, (Letopis 'Zhurnal 'nykh Statey, No. 5, 1949).

LEONOV, M.M.

Stimulation of the function of the reticulo-endothelial system by heterogeneous blood during surgical operations. Izv. AN Arm. SSR. Biol. nauki 13 no.10:77-81 '60. (MIRA 13:12)

1. Kafedra obshchey khirurgii Yerevanskogo zooveterinarnogo instituta.  
(RETICULO-ENDOTHELIAL SYSTEM)  
(BLOOD—TRANSFUSION)

LEONOV, M.M.

Absorption function of the reticulo-endothelial system in suppurative peritonitis and during camphor-novocaine stimulation. Izv. AN Arm.SSR. Biol.nauki 14 No.10:69-74 0'61. (MIRA 16:7)

1. Kafedra obshchey khirurgii Yerevanskogo zooveterinarnogo instituta.

(RETICULO-ENDOTHELIAL SYSTEM) (PERITONITIS)  
(CAMPHOR) (NOVOCAINE)

LEONOV, M.M.

Effect of a novocaine solution of monomycin on the function of  
the reticuloendothelial system in purulent pleurisy. Izv. AN  
Arm. SSR. Biol. nauki 17 no.8:87-91 Ag '64.

(MIRA 17:10)

1. Kafedra khirurgii Yerevanskogo zooveterinarnogo instituta.

LEONOV, M. P.

3

Meteorologiadl. Abst.  
Vol. 4, No. 3  
September 1953  
Part 1  
Wind and Pressure

J 49-134 551.547.2  
Leonov, M. P., O privedenii davleniia k urovniu moria na meteorologicheskikh stantsiakh, vysota kotorykh znachitel'na. [Reduction of pressure to sea level at high altitude meteorological stations.] *Meteorologiya i Gidrologiya*, No. 5:37-40, 1952. 2 figs., 2 tables. DLC—  
The formula for pressure reduction used at present in the U.S.S.R. provides the value of lapse rate as  $0.6^\circ$  per 100 m of altitude. The author analyzed sources of possible errors and concluded that the present equations can be used only for meteorological stations at altitudes lower than 300 m. For stations up to 700 m the calculation can be made by using aerological data. The pressure observations at stations near 1000 m and more must be used without reduction for analysis of 850 mb isobaric surface. The graphs and table are constructed on the basis of observations made in Siberia and Central Asia. They are intended for more accurate calculation of pressure reduction for cases of different lapse rate. Subject Heading: 1. Pressure reduction.—N.T.Z.

EH  
4/11/54

LEONOV, M. P.

"The Vertical Structure of Baric Centers".  
Trudy Odessk. gidromet. in-ta, no 5, pp 60-70, 1953.

The results of an investigation of trajectories of baric systems, their profiles, and also the magnitude and degree of agreement of simultaneous variations in geopotential at various levels are given on the basis of synoptic and altitudinal maps for the period from 1948 to 1951. Anticyclones occur at first near the ground, and are then propagated to considerable heights; their disruption also begins off the surface of the earth. Distinguishable are two types of anticyclones, depending upon their origin, character of the trajectories of the ground center and altitude center, and the type of process that unites the ground center and altitude center, and the type of process that unites the ground center with the altitude center. The author proposes to consider the process of transformation of altitudinal deformational fields either as a process of conversion of low baric formation into an altitudinal one or as the regeneration of an altitudinal formation. He proposes that the criteria of future transformation should be sought on the maps of lower lying levels. (RZhGeol, No 7, 1955)

SO: Sum No 884, 9 Apr 1956

LECMOV, M.P.

"Thermal Advection in the Atmosphere" Tr. Odessk, Gidromet. in-ta, No 5, 1954, 47-59

Methodic analysis is devoted to clarification of the thermal advection and its application to practical synopsis. The plotting of zero-lines of geostrophic heat advection is suggested in the layer of 1,000 to 500 mbar. These lines should be classified according to cold or hot advection and their distribution analyzed. (RZhFiz, No 10, 1955)

LEONOV, M. P.

USSR/Physics of the Atmosphere -- Synoptic Meteorology and Climatology, M-3

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 36130

Author: Leonov, M. P.

Institution: None

Title: On the Features of the Spatial Structure of Cyclones

Original

Periodical: Tr. Odessk. gidrometeorol. in-ta, 1955, No 7, 39-46

Abstract: One distinguishes between 3 types of baric formations: (1) low-developed, having closed isographs only below AT-700; (2) high-developed, which can be traced in all levels; and (3) altitude, which differ only at the upper levels and having no surface portion. Over Europe and the adjacent regions, 50 cases of moving developing cyclones were investigated. It was established that in 1/2 of all cases an undisturbed flow at altitudes AT-700 corresponds to the cyclone at the earth at the start of its development, and that approximately in 1/3 of all cases the presence of the cyclone is shown at all levels simultaneously. The altitude-variation of the value

Card 1/3

USSR/Physics of the Atmosphere - Synoptic Meteorology and Climatology, M-3

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 36130

Abstract: of the average and extremal deepening of the cyclone from the instant it occurs to the stage of maximum development displays 2 peaks on the surfaces of 700 and 300 mb. With this, the phase of the maximum deepening at the altitudes lags with the altitude; at the 850 mb surface the average length of delay is 23 hours, at 300 mb -- 33 hours. The average duration of the existence of moving cyclones diminishes from 3.7 days at the 1,000 mb surface to 2.7 days at the 300 mb surface. With the usual western transfer the trajectory of the surface center is principally parallel to the south of the trajectory of the altitude center, with this the projections of the trajectories on the horizontal plane approach each other in the middle stage of the process, and the slope of the spatial axis increases, and the cyclone fills up. In the final stage, there occurs sometimes a removal of the altitude center from the surface one, which may lead to a splitting of the storm into a surface and an altitude part. In the case of the meridional transfer one observes that the trajectories of the surface and the altitude centers intersect, and therefore the slope of the spatial axis changes from "left" to "right." Finally, one encounters trajectories that are

Card 2/3

USSR/Physics of the Atmosphere - Synoptic Meteorology and Climatology, M-3

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 36130

Abstract: directed in opposition. In these cases the surface centers describe loops with a considerable cyclonical or anticyclonical curvature. Conversion of the trajectories of the surface centers with the equal-altitude lines of various altitudes has shown that the impending 12-hour trajectories are in best agreement with the equal-altitude lines AT-700 and AT-500, deviating from them by not more than 10-20 in 60-80% of all cases, particularly in the last stage.

Card 3/3

LEONOV, M.P.

LEONOV, M.P.

Synoptic and aerological study of atmospheric fronts. *Meteor. i*  
gidrol. no.4:37-40 Ap '57. (MLRA 10:5)  
(Meteorology)

LEONOV, M.P.

"Synoptic meteorology" by O.G. Krichak. Reviewed by M.P. Leonov.  
Meteor. i gidrol. no.7:54-56 J1 '57. (MLBA 10:8)  
(Metereology)

LEONOV, M.P.

Some features of upper-air cyclones. Trudy OGMI no.11:205-210 '57.  
(Cyclones) (Atmosphere, Upper) (MIRA 11:3)

LEONOV, N.P.; IVANIDZE, T.G.

Fronts masked in regard to motion. Trudy OGMI no.11:211-222 '57.  
(Atmosphere) (MIRA 11:3)

AUTHOR: Leonov, M. P.

50-58-5-7/20

TITLE: The Cold Front in the Front Part of the Cyclone (Kholodnyy front v peredney chasti tsyklona)

PERIODICAL: Meteorologiya i Gidrologiya, 1958, Nr 5, pp 37 - 40 (USSR)

ABSTRACT: On January 3-4, 1958 a cyclone passed above the Baltic Sea which caused heavy rainfall and storms in the neighboring regions. The present paper is devoted to the motion of the fronts in this cyclone which showed a number of peculiarities. Figure 1 shows the stage of filling up. From it the main deviations from the generally valid schemes are to be seen. The displacement of the cold front in the front part of the cyclone can be explained by the fact that the wind at the earth's surface in the northeast square of the cyclone had a component, normal to the front, in the cold air mass of a velocity of 3-7 m/second (figure 1). In the free atmosphere (figures 2,3) the front on the whole lies in the northern stream. In the north-east square neither a warm front nor a temperature advection corresponding to the latter existed.

Card 1/3

The Cold Front in the Front Part of the Cyclone

50-58-5-7/20

Such a frontal motion and the corresponding coolings were not only observed on the day mentioned, but also before and after it. The motion of fronts, as described, although with lower velocities is not rare. The change of the nature of such types of fronts, i.e. the transition of a warm front into a cold front or inversely, will take place where the direction of the isalobaric gradient and the nature of the thermal advection on high change. } aerological cross sections for the above-mentioned day confirmed this analysis (Figure 5). From it follows that ascending currents are only observed near the intersection of the frontal surface with the earth's surface, then they are replaced by descending currents. The distribution of the vertical currents is in agreement with the observed weather. The inclination of the front in the course of time decreased toward the horizon. On January 5 the front was washed out and transformed into an inversion. The front discussed here as well as the mentioned fronts in "anomalous" cyclones or at western peripheries of the ultra-polar cyclones are masked with regard to the motion. From figures 1 and 2 is to be seen that the cyclone above the Baltic Sea moved in a

Card 2/3

The Cold Front in the Front Part of the Cyclone

50-58-5-7/20

manner that the frontal high zone which determined its development and evolution was not as usual situated at the side of the warm sector, but at the cold side of the cyclone. The spatial axis of the cyclone was inclined to the left of its trajectory. The unusual conditions of motion of the front naturally were connected with the structure and the motion of the cyclone. There are 5 figures.

1. Meteorology    2. Cyclones--Structural analysis    3. Cyclones  
--Temperature factors    4. Temperature--Analysis

Card 3/3

LEONOV, M.P.

Thermobaric fields and vertical currents in southern cyclones.  
Trudy Ukr NIGMI no.10:58-69 '59. (MIRA 13:5)

1. Chernovitskiy gosuniversitet.  
(Cyclones)

L 61732-65 ENT(1)/FCC GW

ACCESSION NR: AT5017683

UR/2599/65/000/047/0030/0050

AUTHOR: Leonov, M. P. (Candidate of geographical sciences)

TITLE: Preliminary results of investigating steady rains from data of a dense rain gage network

SOURCE: Kiyev. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskii institut. Trudy, no. 47, 1965. Voprosy aktivnykh vozdeystviy na atmosferynye protsessy (Problems of active influences on atmospheric processes), 30-50

TOPIC TAGS: weather station, rainfall, cloud, frontal zone, cyclone

ABSTRACT: From observations at a dense rain gage network of experimental meteorological stations (for the six winter months of 1960-62), a method has been worked out for investigating fields of steady rains. During the cold part of the year, the passage of one or several fronts in cyclones and troughs, accompanied by relatively continuous rain, shows considerable inhomogeneity in the horizontal distribution of rain. Zones of relatively high and relatively low rain totals appear. These are oval in outline with an average size, including the adjacent zones of intermediate precipitation, of less than 100-200 km<sup>2</sup>. The main cause of these zonal patches of steady rain is apparently inhomogeneous structure in the

Card 1/3

L 61732-65

ACCESSION NR: AT5017683

clouds at the front and within the mass. Different kinds of clouds are associated—cumulus and cumulonimbus within nimbostratus and altostratus—and this combination produces patches of high precipitation with intervening zones of low precipitation. The patchiness of steady rains over plains is due in part to large industrial regions as well as to inhomogeneities of cloud structure. It is necessary to obtain average precipitation values, and the areas used for averaging must be considerably larger than the natural zones of high or low rainfall. The optimal area for winter appears to be 100-200 km<sup>2</sup>. Variability of rainfall in individual cells is large. Within the area of dense rain gage stations, this variability was on the order of the average rainfall value for the area. On the other hand, the correlation between average rainfall and the corresponding value at individual stations was very good. The great variation in amount of precipitation during steady rains makes evaluation of experimental results difficult. The production of a punch card index of many measurements permits mechanization of the treatment, however, and facilitates interpretation. Larger areas for averaging may be readily adopted, and this leads to smoothing of the precipitation curves. The fact that isohyets differ but slightly and the fact that possible correctable errors are few lead the author to conclude that though steady rains show horizontal variation the basic pattern of this variation is systematic. Orig. art. has: 8 figures, 9 tables, and 4 formulas.

Card 2/3

L-61732-65

ACCESSION NR: AT5017683

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy  
institut (Ukrainian Scientific Research Hydrometeorological Institute)

SUBMITTED: 00

ENCL: 00

SUB CODE: ES

NO REF SOV: 013

OTHER: 005

Card 3/3 *ADP*

LEONOV, M.P., kand.geograf.nauk (Kiyev)

Experiments in artificial control of precipitation. Priroda 54  
no.7:61-64 J1 '65.  
(MIRA 18:7)

LEONOV, M.P.

Water balance of some precipitating clouds. Izv. AN SSSR. Fiz.  
atm. i okeana 1 no.5:550-553 My '65. (MIRA 18:8)

1. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy  
institut, Kiyev.

LEONOV, M.P., kand. geograf. nauk

Some data on experiments in the intensification of winter precipitation. Meteor. i gidrol. no.1:38-40 Ja '65.

1. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskii institut. (MIRA 18:2)

LEONOV, M.P.; NEROBEYEVA, T.D.

Intensification of precipitation over an experimental meteorological  
site in the winter of 1963-64. Trudy UkrNIGMI no.47:88-99 '65.  
(MIRA 18:7)

**"APPROVED FOR RELEASE: 07/12/2001**

**CIA-RDP86-00513R000929230002-4**

**APPROVED FOR RELEASE: 07/12/2001**

**CIA-RDP86-00513R000929230002-4"**

KORSHUNOV, I.A.; NOVOTOROV, N.F.; AMENITSKAYA, R.V.; OKROKOVA, I.S.;  
PESTUNOVICH, N.A.; DUBOVSKAYA, V.N.; LEONOV, M.R.; GLAZOV,  
V.M.

Synthesis of organic compounds tagged with radioactive carbon. Radiokhimiia 1 no.6:728-733 '59. (MIRA 13:4)  
(Carbon--Isotopes) (Organic compounds)

LEONOV, M.R.; MALENEVA, I.G.

Synthesis of methyl cellosolve from ethylene oxide and methyl alcohol.  
Trudy po khim.i khim.tekhn. NO.1:186-187 '63.

(MIRA 17:12)

LEONOV, M.R.; MALENEVA, I.G.; KORSHUNOV, I.A.

Synthesis of methyl-, propyl-, and isopropylcellosolves from ethylene oxide and corresponding alcohols. Zhur.prikl.khim. 38 no.6:1367-1373 Je '65. (MIRA 18:10)

1. Institut khimii Gor'kovskogo gosudarstvennogo universiteta imeni N.I.Lobachevskogo.

LEONOV, M.R.; KORSHUNOV, I.A.

Tracer method determination of by-products in the synthesis of  
ethylcellosolv. Zhur. ob. khim. 32 no.1:208-212 Ja '62.

(MIRA 15:2)

1. Gor'kovskiy gosudarstvennyy universitet imeni N.I.Lobachevskogo.  
(Ethylene glycol) (Carbon--Isotopes)

LEONOV, M.R.; KORSHUNOV, I.A.

Synthesis of ethyl cellosolve. Zhur.prikl.khim. 35 no.10:2324-  
2328 0 '62. (MIRA 15:12)

1. Institut khimii Gor'kovskogo gosudarstvennogo universiteta  
imeni N.I.Lobachevskogo.  
(Ethanol)

LEONOV, M. R.; REDOSHKIN, B. A.; SHUSHUNOV, V. A.

Radiochemical investigation of the reaction of cumene hydro-  
peroxide with cumene. Zhur. ob. khim. 32 no.12:3959-3962  
D '62. (MIRA 16:1)

(Cumene) (Hydroperoxide) (Radiochemistry)

LEONOV, M.S., inzhener; SANDOMIRSKIY, S.B., inzhener.

Centralized production planning and scheduling cyclic operations in  
a heavy machine-tool plant. Vest.mash.35 no.11:72-75 H '55.  
(Machine-tool industry) (MLRA 9:2)

LEONOV, M.S., mayor

Working with each flier individually. Vest.protivovozd.obor. no.1:  
33-35 Ja '61. (MIRA 14:2)  
(Flight training)

LEONOV, M.V.

**AUTHORS:** Bryantseva, Yu.V., Korchagina, O.M., Zolotareva, Z.V.,  
Pavlenko, L.P., Leonov, M.V.  
**TITLE:** The Preparation of Lacquers (Coating Films) from Polystyrene Residues Obtained During the Manufacture of Synthetic Rubber (poluchenye lakov (zashchitnyy plienki) iz polistirolnykh ostatkov proizvodstva sinteticheskogo kauchuka)

**PERIODICAL:** Kauchuk i Rezina, 1959, Nr. 4, pp 32-35 (USSR)  
**ABSTRACT:** The production of resins from polystyrene residues and their use in the manufacture of lacquers and coloured coatings was investigated. At present, styrene rubber is prepared by the debenzoylation of ethyl benzene. After the distillation of styrene, polystyrene or vat residues are obtained as by-products. Polystyrene or vat residues have not been investigated in detail, but it was known that the crystalline part contained stilbene and diphenyl ethane. Investigations carried out in 1957 in the Department for Organic Chemistry of the Voronezh

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University (under the guidance of Professor S.Y. Zavgorniy) are reviewed. The vat residues contain polystyrene, which is used in the manufacture of organic glass, resins, acid resistant vessels and lacquers. The authors carried out experiments on the use of the preparation of lacquers and coloured coating compositions and tested the properties of the coatings. It was found that the coatings were light-stable, resistant to the action of alkali, alcoholic media, industrial water, concentrated sulphuric acid etc. The polystyrene can also be used in electrical and radio-technical apparatus as they show good electrical insulating properties. The physical and chemical characteristics of the resins are listed in Table 1 and the yield of resins in Table 2. A plant for the separation of the resins from the vat residue was constructed on pilot plant scale (Figure 1). During these experiments, 75 kg of vat residues were processed at a temperature of 20 to 30°C and a pressure of 750 to 795 mm Hg. The distillation was carried out up to 220 to 240°C (750 to 795 mm Hg); a 30 to 40% yield was obtained. Three different compositions

Card 2/3

of lacquers are given in Table 3, and similarly the composition of coloured coatings in Table 4. The dependence of the viscosity of the polystyrene lacquer on the temperature is shown in the form of a graph (Figure 2). The Voronezh factory which produced synthetic rubber from polystyrene vat residues commenced the processing of polystyrene vat residues from synthetic rubber manufacture in 1957 and is at present producing lacquers for the furniture industry and for interior decoration. There are 2 figures and 4 tables.

**ASSOCIATION:** Voronezhskiy gosudarstvennyy universitet i zavod sinteticheskogo kauchuka in S.M. Kirova (Voronezh State University and Factory for Synthetic Rubber in S.M. Kirov)

Card 3/3

OSTER-VOLKOV, N.N.; LEONOV, M.V.; KALYAYEV, M.M.

Quick-setting core mixtures. Plast.massy no.3:61-62 '64.  
(MIRA 17:3)

2-1-61066, 11/1/17.  
LEONOV, M. Ya.; ATOYAN, K. M.

Modernizing the K-32 truck-crane jib. Nauch. zap. IMA L'viv AN  
URSR 2 no.1:105-107 '53. (MIRA 8:11)  
(Cranes, derricks, etc.)

L 23482-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 DJ/RM

ACCESSION NR: AP5002336

8/0145/64/000/011/0035/0041

AUTHOR: Brandman, G.S., (Aspirant); Novokreshchenov, P.D.; Leonov, M.V. (Engineer)

TITLE: The wear resistance of ED-5 and ED-6 epoxy resins

SOURCE: IVUZ. Mashinostroyeniye, no. 11, 1964, 35-41

TOPIC TAGS: epoxy resin, epoxy resin wear, wear resistance, dry friction, dibutylphthalate, plasticizer, hexamethylenediamine

ABSTRACT: Epoxy resins are being used to a great extent in machine tool plants for the manufacture of stamp parts. The ED-5 and ED-6 epoxy resins, as well as ED-40 resin which is almost the same as ED-6, are generally used for casting these parts. One of the most important features of these plastics is their high wear resistance. The present paper compares the wear of ED-5 and ED-6 epoxy resins, considering the heat created by friction and the temperature of the ambient media. The importance of the plasticizer is established and the dependence of the force and coefficient of friction on the load and temperature is pointed out. A "Skoda-Savina" machine was used to test the dry friction and wear. The depth of disc penetration was noted, as well as the change in weight during wear, the

Card 1/3

L 23482-65

ACCESSION NR: AP5002336

temperature at the point of contact, and also the force of friction. All tests were made without lubricants at 8.5 m/min. and under loads varying from 1 to 20 kg. Each test took 3 hours. The samples were tested either with or without plasticizers, and the hardening agent was hexamethylenediamine. The mixture, consisting of 100 parts by weight of resin, 10 parts of dibutylphthalate (if present) and 20 parts of hexamethylene diamine, was thoroughly mixed and vacuumized. The samples were then cast and hardened at room temperature for 15-20 hours with subsequent heat treatment at 90C 6-7 hours. The tests showed that the ED-5 epoxy resin has certain advantages over the ED-6 resin in relation to wear resistance. The plasticizer (dibutylphthalate) lowered the hardness somewhat and increased the weight loss during wear. However, at optimal plasticizer content, the increase in weight loss is insignificant and does not affect the adequacy of the plasticized resin for stamp manufacture. The lower loss of weight during wear and higher hardness of the ED-5 epoxy resin without the plasticizer is not of great significance for stamp manufacture, since the other mechanical properties are lower. Cooling of the surface changes the type and degree of wear, preserving the type of surface wear until the loads become higher. Orig. art. has: 7 figures and 1 table.

Card 2/3

L 23482-65

ACCESSION NR: AP5002336

ASSOCIATION: Voronezhskiy gosudarstvennyy pedagogicheskiy institut (Voronezh state  
pedagogical institute)

SUBMITTED: 15Feb63

ENCL: 00

SUB CODE: MT

NO REF SOV: 007

OTHER: 001

Card 3/3

LEONOV, M.V., inzh.

Developing new polymer compositions for plastic dies. [Nauch.  
trudy] ENIKMASHa 8:136-143 '64. (MIRA 18:3)

LEONOV, M.V.; OSTER-VOLKOV, N.N.; KALYAYEV, M.M.

New plastics for stamping tools. Mashinostroitel' no.12:  
28-30 D '64. (MIRA 18:2)

L 14043-66 EWP(j)/EWT(m)/ETC(m)-6/T. RM/WW/DJ

ACC NR: AR5020056

SOURCE CODE: UR/0081/65/000/012/s078/s078

AUTHOR: Brandman, G.S.; Novokreshchenov, P.D.; Leonov, M.V. 52  
B

ORG: none 144

TITLE: Wear<sup>144</sup> of polymer compounds with epoxy resin bases

SOURCE: Ref. zh. Khimiya, Abs. 128508

REF SOURCE: Izv. Voronezhsk. gos. ped. in-ta, v. 44, 1964, 140-145

TOPIC TAGS: polymer, epoxy plastic, hardening 15 1455, 15

TRANSLATION: A study was made of the attrition of hardened ED-5 and ED-6 epoxy resins and of compounds based on them with the addition of iron (Zh) powder fillings, currently used for coating the operational parts of plastic stamps, and also of FAED-13 resin (a mixture of a furfuralacetone monomer FA with ED-6) and of EV-4 (a mechanical mixture of ED-6 with monomer Y-4). Tests on dry friction and wear were made on a Skoda-Savin machine at velocities of 0.5 m/min. and pressures of up to 80 kg/cm<sup>2</sup>. A relation was established between the intensity of attrition and the load and pressure, disregarding the heating caused by dry friction. A study was made also of the effect of fillings on the character of the attrition. Research has shown that the FAED-13Zh compound had a lower wear resistance than EZh-1 and EV-4Zh. Yu. Zybin. 15 15

SUB CODE: 07 144

Card 1/1 2

LEONOV M. Ya

Leonov, M. I. On quasi-harmonic oscillations. Appl. Math. Mech. (1946). Nauk SSSR. Prikl. Mat. Mech. 10, 575-580 (1946). (Russian. English summary.)

The small oscillations of dynamical systems with one degree of freedom are often reducible to an equation (1)  $G(t)z + (G + \mu(t))z + D(t)z = F(t)$ , where  $\mu(t)$  is a friction coefficient. A further reduction may be made to the form (2)  $z + 2\psi(t)z + \epsilon^{1/2}Q(t)z = Q(t)$ . The author solves (2) by the relation

$$z = c\psi(t, \tau) \sin \varphi(t, \tau) + \int_{-\infty}^t f(t, \tau) \sin \varphi(t, \tau) Q(\tau) d\tau,$$

where  $c, \tau$  are arbitrary parameters,  $\varphi$  satisfies the nonlinear integral equation

$$(3) \quad \varphi(t, \tau) = \int_{-\infty}^t c^2 dt + \int_{-\infty}^t \sin 2\varphi(t, \tau) (\psi dt + d\psi)$$

and  $f$  is given by  $f = \exp \{ - (\psi(t) + \psi(\tau) + J(t, \tau)) \}$ ,

$$J(t, \tau) = \int_{-\infty}^t (\psi dt + \cos 2\varphi(t, \tau) (\psi dt + d\psi)).$$

The behavior of the free oscillations ( $Q = 0$ ) is discussed and likewise that of the forced oscillations when the second integral in (3) is several times smaller than the first with some approximate information regarding dying-down oscillations.

S. Lefschetz (Princeton, N. J.).

Source: Mathematical Reviews,

Vol 8 No. 6.

LEONOV, M.Ya.

Theory of quasi-harmonic oscillations. Dep.AN URSS no.3:51-57 '48.  
(MLRA 9:9)

1.L'vivskiy viddil Institutu girnichoi mekhaniki Akademii nauk  
Ukrains'koi RSR. Predstavleno akademikom M.O.Lavrent'yevim.  
(Oscillations)

LEONOV, M. Ya.

Leonov, M. Ya. - "Torsional oscillations of the crankshaft under steady motor-operating conditions," Doklady Akad. nauk Ukr. SSR, No. 6, 1948

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949)

LEONOV, M. Ya.

Leonov, M. Ya. - "Certain problems in the dynamics of load-carrying ropes,"  
Doklady Akad. nauk Ukr. SSR, No. 6, 1948, p. 50-53, (In Ukrainian, resume in Russian)

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949.)

LEONOV, M. Ya

Verbatim: Leonov, M. Ya -"On the study of the damping and frequency of quasi-harmonic oscillations," Doklady Akad. nauk Ukr. SSR, No. 6, 1948, p. 54-56, (In Ukrainian, resume in Russian)

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949.)

AMR

Vibrations, Balancing  
35

1242. M. Y. Leonov, "Certain criteria of dynamical stability"  
(in Russian); *Appl. Math. Mech. (Prikl. Mat. Mekh.)*, Nov.-Dec.  
1948, vol. 12, pp. 737-748.

The author considers the equation

$$G(t) d^2z/dt^2 + (dG/dt + 2\alpha(t)) dz/dt + D(t)z = 0,$$

where all functions entering are real. A standard change of independent and dependent variable yields  $d^2y/ds^2 + \theta(s)y = 0$ . Solutions of the form  $y = f(s) \sin \phi(s)$ ,  $dy/ds = u(s) f(s) \cos \phi(s)$  are investigated, and relations are obtained between  $u$ ,  $f$  and  $\phi$ . After these preliminaries, the case where  $\theta(s)$  is periodic with period  $\pi$  is treated. If for some  $\alpha$ ,  $\phi(\alpha) = \phi(0) + \alpha\pi$ ,  $y$  is said to be a solution with "resonant phase." The conditions for the existence of such a solution are given, together with the connection between this concept and the boundedness or unboundedness of the solution.

R. Bellman, USA

AS 6-31.4 METALLURGICAL LITERATURE CLASSIFICATION

*Leonov M. Ya.*

Leonov, M. Ya. The parametric representation of quasi-harmonic oscillations. Doklady Akad. Nauk SSSR (N.S.) 62, 161-162 (1948). (Russian)

Solutions of the equation (1)  $\ddot{x} + 2\gamma(\theta)x + x = 0$  ( $\dot{\theta} = dx/d\theta$ ) are given in the form  $x = \sin \varphi \exp(-2 \int_0^\theta \gamma \cos^2 \omega d\theta)$ , where  $\varphi$  is the general solution of (2)  $d\varphi/d\theta = 1 + \gamma \sin 2\varphi$ , and  $c$  is a constant. The author introduces the function  $\mu(\varphi) = \gamma d\theta/d\varphi$ . The case when  $\gamma$  is periodic of period  $L$ ,  $\int_0^L \gamma d\theta > 0$ , is considered. The author states that, for the existence of unstable solutions of (1): (i) it is necessary that a solution  $\varphi_p$  of (2) exists with the property  $\varphi_p(\theta + L) = \varphi_p(\theta) + n\pi$ , where  $n$  is an integer; (ii) if (i) is satisfied, it is necessary and sufficient that  $|\int_0^L \mu \cos 2\varphi d\varphi| > \int_0^L \mu d\varphi$ .

No proof is given of the first statement. The second one is apparently incorrect. J. L. Massera (Montevideo).

Source: Mathematical Reviews,

Vol. 10 No. 4

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PROCESSING AND PROPERTY INFORMATION																																																																													
<div style="display: flex; justify-content: space-between;"> <div> <p>AMR</p> <p>Aug '49</p> <p>ASAC-51A METALLURGICAL LITERATURE CLASSIFICATION</p> </div> <div> <p>Vibrations, Balancing</p> <p>35</p> </div> </div>																																																																													
<p>077. M. Ya. Leonov, "Stability of quasi-harmonic vibration" (in Russian), <i>Notes Acad. Sci. USSR (Doklady Akad. Nauk SSSR)</i>, Feb. 1949, vol. 64, pp. 645-648.</p> <p>Continuing his investigation of the stability of solutions of the second-order linear differential equation with periodic coefficients, the author shows how the equation <math>\ddot{x} + a(t)x + x = 0</math>, <math>a(t)</math> periodic with period <math>T</math>, <math>\int_0^T a(t)dt = 0</math>, may be treated using techniques developed in previous papers [<i>Notes Acad. Sci. USSR (Doklady Akad. Nauk SSSR)</i>, 1948, vol. 62, nos. 2 and 3; <i>Appl. Math. Mech. (Prikl. Mat. Mekh.)</i>, 1946, no. 5-6, 1948, no. 6].</p> <p style="text-align: right;">Richard Bellman, USA</p>																																																																													
<div style="display: flex; justify-content: space-between;"> <div> <p>SECRET</p> <p>EX-111</p> </div> <div> <p>EX-111</p> <p>EX-111</p> </div> </div>																																																																													

LEONOV, M. Ya.

Inversion method for calculating contact problems in the theory of  
elasticity. Nauch.zap. IMA L'viv.fil. AN URSR no.1:99-109 '53.  
(Elasticity) (MLRA 8:11)

KEONOV, M. Ya.

*file* ✓ Leonov, M. Ya. Approximate method of investigating quasi-harmonic oscillations. Inst. Mashinoved. Avtomat. Nauch. Zap. 2 (1953), no. 1, 5-8. (Russian)

By a change in the independent variable the solution of a class of 2nd order linear differential equations is reduced to the problem of solving a first order nonlinear differential equation. Approximate solutions of the second order equation are obtained from approximate

solutions of the first order equation. [The first equation in (1.5) should read:  $\gamma = r/GD + \{d(\ln GD)/d\theta\}$ .]

J. P. LaSalle (Notre Dame, Ind.).

LEONOV, M.YA.

Mathematical Reviews  
Vol. 15 No. 3  
March 1954  
Analysis

6-24-54

LL

Leonov, M. Ya. Solution of an integral equation of the theory of the Newtonian potential. Ukrain Mat. Zhurnal 5, 50-57 (1953). (Russian)

The author gives an explicit solution of the integral equation

$$(1) \quad u(x, y) = \iint_S p(\xi, \eta) r^{-1} d\xi d\eta \quad (r^2 = (x - \xi)^2 + (y - \eta)^2, \\ S = \{x^2 + y^2 \leq a^2\})$$

arising in the field of elasticity,  $u$  being assigned on  $S$ . One has on  $S$ :  $u(x, y) = U(x, y, 0)$ , where  $U(x, y, z)$  is potential of masses distributed on the plane region  $S$ . The resolution of (1) is carried out without the aid of the solution of a corresponding problem of Dirichlet, on the basis of some of the fundamental properties of the Newtonian potential.

W. J. Trjitzinsky (Urbana, Ill.).

LEONOV, M. Ya.

Simon  
②

Mathematical Reviews  
Vol. 14 No. 11  
December, 1953  
Mechanics.

Leonov, M. Ya. The general problem of the pressure of a circular punch on an elastic half-space. Akad. Nauk SSSR. Prikl. Mat. Meh. 17, 87-98 (1953). (Russian)  
The theory of the pressure of a rigid circular cylinder (termed punch) on the elastic half-space was given in a most general form by L. A. Galin [same journal 10, 425-448 (1946); these Rev. 8, 241]. The author of this paper presents a summary of the above work and gives a more detailed development for particular cases. The method involves a wide application of harmonic stress functions, potential functions, and Green functions. The problem can be stated briefly as follows: given the displacements under a rigid circular punch, find the pressure under the punch and, the displacements of the plane surface of the half-space which is outside the punch. The author discusses two cases: when the axis of the cylindrical punch is normal to the plane surface of the half-space, and when it is inclined.  
T. Leser (Lexington, Ky.).

Inst. Machine Bldg. & Automates, AS Ukr SSR

USSR/Engineering - Mechanics

FD-1109

Card 1/1      Pub. 41-3/13

Author        : Leonov, M. Ya. and Panasyuk, V. V., L'vov

Title         : Stability of casing tubes

Periodical    : Izv. AN SSSR Otd. tekhn. nauk 5, 51-56, May 1954

Abstract      : Investigates the possible loss of stability of a long tube subjected to uniform pressure by an elastic body. This kind of problem is encountered in the study of the stability of casings and similar underground structures. The problem is solved under conditions of plane deformation of the tube and elastic body, being reduced to a study of the deformation of an infinitely elastic plane with a circular hole whose edge is reinforced by a thin elastic ring. Graphs, table. One reference.

Institution   : Institute of Machine Studies and Automatics of the Academy of Sciences of the USSR

Submitted     : February 15, 1954

*Leonov, M. Ya.*

KARPENKO, G.V., doktor tekhnicheskikh nauk, professor, redaktor; SAVIN, G.N. redaktor; LOPATINSKIY, Ya.B., redaktor; LEONOV, M.Ya., doktor fiziko-matematicheskikh nauk, redaktor; MIKHAYLOVSKIY, V.N., kandidat tekhnicheskikh nauk, redaktor; PARASYUK, O.S., kandidat fiziko-matematicheskikh nauk, redaktor; PANASYUK, V.V., kandidat fiziko-matematicheskikh nauk, redaktor; ZIL'BAN, M.S., redaktor; RAKHLINA, N.P., tekhnicheskii redaktor

[Some problems in the fatigue of steel with calculation of the influence of active agents] Nekotorye voprosy ustalostnoi prochnosti stali s uchatom vliianiia aktivnoi sredy. Kiev, Izd-vo Akademii nauk USSR, 1955. 48 p. (MLRA 9:3)

1. Akademiya nauk URSS, Kiev. Institut mashinoznnavstva i avtomatiki.
2. Deystvitel'nyy chlen AN URSS (for Savin)
3. Chlen-korrespondent AN URSS (for Lopatinskiy) (Steel--Fatigue)

LEONOV, M. YA.

USSR/Physics - Unstable equilibrium

FD-3093

Card 1/1 Pub. 85 - 8/16

Author : Kopeykin, Yu. D.; Leonov, M. Ya. (L'vov)

Title : A special case of loss of stability of equilibrium of a compressed rod

Periodical : Prikl. mat. i mekh., 19, Nov-Dec 1955, 736-737

Abstract : In the determination of loads causing loss of stability of definite forms of equilibrium of elastic systems one ordinarily finds those loads for which there exist along with the investigated one other forms of equilibrium. In the present note the author presents an example for which the method of Euler cannot give the solution of the problem. He considers a rod held fast at one end and centrally loaded at the free end by a longitudinal force which remains normal to the terminal cross-section during bending of the rod. The author claims that V. I. Fedos'yev's book (Izbrannyye zadachi i voprosy po soprotivleniyu materialov [Collected tasks and problems on resistance of materials], GTTI, p. 165) gives an erroneous derivation of stability of a rod under any magnitude of the compressional force.

Institution :

Submitted : September 15, 1954

FD-3094

USSR/Physics - Stability of compressed rod

LEONOV, M YA.  
Card 1/1 Pub. 85 - 9/16

Author : Deyneko, K. S.; Leonov, M. Ya. (L'vov)  
Title : Dynamic method for investigation of the stability of a compressed rod  
Periodical : Prikl. mat. i mekh., 19, Nov-Dec 1955, 738-774  
Abstract : The authors calculate the loss of stability of a rod compressed by a following force, with uniformly distributed mass in the rod. They discuss the differential equation for the transverse oscillations of a rod compressed by an axial force. The rod studied in this note is assumed to be held fixed at one end and centrally loaded at the free end by a longitudinal so-called following or tracking force directed tangentially to the rod's axis. The authors find the influence of the distribution of masses in the rod upon the magnitude of the critical force. They discuss the applicability of their approximate methods of determination of critical force in the case of non-conservative forces.

Institution :

Submitted : March 18, 1955

SOV/124-57-4-4596

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 4, p 104 (USSR)

AUTHOR: Leonov, M. Ya.

TITLE: An Approximate Solution to a Torsional Problem (Priblizhennoye resheniye zadachi o kruchenii)

PERIODICAL: Nauch. zap. In-ta mashinoved. i avtomatiki AN UkrSSR, 1956, Vol 5, pp 41-45

ABSTRACT: For the purpose of computing the tangential stresses arising during torsion of a solid rod at "points" on the boundary contour  $\Gamma$  of the cross section B of the rod, the author derives the following formula

$$\tau = G \vartheta \left( 2h - \frac{h^2}{\rho} \right) \quad (1)$$

where  $G$  is the shear modulus,  $\vartheta$  the angle of twist,  $\rho$  the curvature of the contour  $\Gamma$  at a given point A, and  $h$  the length of a segment of normal to  $[\Gamma]$  at point A and extending from A to the intersection with the "central" section line, the latter being defined as the locus of the

Card 1/2

SOV/124-57-4-4596

An Approximate Solution to a Torsional Problem

centers of circles belonging to  $B$  and being tangent to  $\Gamma$  in at least two points. The evaluation of the error of formula (1), given only for the case of a rod with an elliptical cross section (as a function of the ratio of the semiaxes of the ellipse which is made to vary from 0 to 12.5%), does not furnish sufficient information to determine the applicability of the formula to a wide variety of cases owing to the approximate nature of the derivation of said formula.

P. P. Kufarev

Card 2/2

SOV/124-58-2-2077

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 2, p 82 (USSR)

AUTHORS: Leonov, M. Ya., Panasyuk, V. V.

TITLE: On the Approximate Determination of Torsional Stiffness (O priblizhennom opredelenii zhestkosti pri kruchenii)

PERIODICAL: Nauchn. zap. In-ta mashinoved. i avtomatiki. AN UkrSSR, 1956, Vol 5, pp 46-50

ABSTRACT: For the determination of the torsional stiffness of a thin walled bar the author adduces the approximate formula

$$C = \frac{4}{3} G \oint h^3(s) ds \quad (*)$$

where  $h(s)$  is the distance from a given point on the contour to the center line (Leonov, M. Ya., Nauchn. zap. In-ta mashinoved. i avtomatiki AN UkrSSR, 1956, Vol 5, pp 41-45; RZhMekh, 1957, Nr 4, abstract 4596) and the integration extends over the entire contour. The stiffness is computed according to formula (\*) for cases in which the cross section is a circular sector and a rectangle. The approximate results obtained are compared with exact results. The paper fails to provide a rigorous assessment

Card 1/2

SOV/124-58-2-2077

On the Approximate Determination of Torsional Stiffness  
of the limits of applicability of formula (\*).

B. L. Abramyan

Card 2/2